Hallam Land Management

Proposed Residential Development, Seafield Road, Blackburn

Transport Assessment

Report

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Report

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Tables and Figures

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1 Introduction

1.1 JMP Consultants Ltd (JMP) has been commissioned by Hallam Land Management to undertake a Transport Assessment (TA) in support of an application for planning permission in principle for a proposed residential development consisting of up to 120 new houses. The indicative boundaries of the two parcels of land to the north and south of the A705 Seafield Road making up the development are identified in **Figure 1.1** below.

1.2 It must be noted that the north site is proposed to contain up to 70 units and the south site up to 50 units however for the purpose of this report and to ensure a robust assessment, the transport assessment has been undertaken for up to 170 units, based on 120 on the north site and 50 on the south site.

Figure 1.1 Site Location

1.3 This TA is intended to assess the accessibility of the site and ensure that it can be integrated into the surrounding transport network. The trip generation potential of the site will be assessed to ensure that there is no significant impact on the existing users of the surrounding transport network.

1.4 Sustainable development principles will require to be adopted to ensure that accessibility to the site on foot, by cycle and by public transport is maximised and that trips by car are able to be accommodated by the existing road network. This is in accordance with current guidelines which

prioritise the more sustainable modes over car based trips with the 'predict and provide' methodology for assessing vehicle trips no longer in agreement with current legislation.

1.5 The TA has been undertaken in accordance with the following policy and guidelines:

- Scottish Planning Policy;
- Planning Advice Note (PAN) 75 – "Planning for Transport";
- The Scottish Government's "Transport Assessment & Implementation: A Guide (TAIG);
- West Lothian Council's Adopted Road Development Guide;
- The Local Transport Strategy for West Lothian Council; and
- West Lothian Council's Adopted Local Plan.

1.6 To inform the process and agree the general parameters adopted for the purpose of assessment, initial discussions were carried out with West Lothian Council and we would like to take this opportunity to thank them for their assistance. The TA has also been informed by a prior detailed site visit undertaken by JMP in February 2012.

1.7 Following this introductory chapter, Chapter 2 examines National, Regional and Local policy, Chapter 3 considers the existing transport network, Chapter 4 looks at the proposed development characteristics and Chapter 5 identifies measures to support the development. Chapter 6 contains the traffic impact assessment and Chapter 7 contains the conclusions of the report.

2 Policy Context

National Planning Policy

Scottish Planning Policy

2.1 Scottish Planning Policy (SPP) of February 2010 is a statement of the Scottish Government's policy on land use planning matters and superseded SPP 17 which provided guidance on transport and planning matters.

2.2 SPP contains sections on a wealth of planning subject policies and includes a separate section for Transport. Planning Advice Note (PAN) 75 accompanies the SPP on transport issues.

Scottish Planning Policy on Transport

2.3 As stated above, SPP provides guidance on the development of integrated land use and transport planning. It aims to provide guidance sufficient to enable sustainable development in terms of improving transport to support economic growth while protecting the environment and improving the quality of life.

2.4 Paragraph 165 notes that "Reducing emissions from transport sources as a contribution to achieving Scottish Government greenhouse gas emission targets requires a shift to more sustainable modes of transport". This means a shift from car based travel to walking, cycling or public transport.

2.5 It is indicated in Paragraph 165 that "The planning system should support a pattern of development which reduces the need to travel, facilitates travel by public transport and freight movement by rail or water, and provides safe and convenient opportunities for walking and cycling".

2.6 SPP paragraph 167 notes that "Significant travel-generating uses should be in locations which are well served by public transport and the amount of associated car parking permitted should be controlled to encourage more sustainable travel choices". SPP indicates that Travel Plans should also be encouraged for these types of developments.

2.7 Paragraph 168 goes on to emphasise that planning permission should not be granted for significant travel generating uses in locations:-

- Where immediate links to walking and cycling networks are not available or cannot be made available;
- Where access to public transport networks would involve walking more than 400m;
- Which would encourage reliance on the private car;
- Which would be likely to have a detrimental effect on the capacity of the strategic road and/or rail network;
- Where a Transport Assessment does not include any satisfactory mechanisms for meeting sustainable transport requirements.

2.8 SPP paragraph 169 gives a hierarchy of personal travel modes to be prioritised. These are in the following order:-

- Walking;
- Cycling;
- Public Transport;
- Car; and
- Other Motorised Vehicles.

2.9 It also indicates that buildings and facilities should be accessible on foot and cycle such that "improvements to active transport networks, such as paths and cycle routes, in rural urban and rural areas will support more sustainable travel choices". It is also the aim that urban areas become more attractive and safer for pedestrians and cyclists including people who may have mobility problems. Accessibility issues along with street layout and design should be part of the design and planning processes from the outset.

2.10 Parking policies are emphasised in the SPP document. Paragraph 171 notes that "the availability of parking can have an important influence in reducing the reliance on the car". It suggests that planning authorities should apply maximum parking standards to onsite parking at new development to encourage modal shift, but also notes that such parking restraint policies should be accompanied by measures to support high quality public transport services.

Local Planning Policy

Edinburgh and the Lothian Structure Plan 2015

2.11 In terms of housing, the main objectives of the Edinburgh and the Lothian Structure Plan 2015 are to:

- Maintain, within a long-term settlement strategy, an effective five-year supply of land for housing at all times consistent with local infrastructure, environmental and amenity considerations;
- Give priority to the re-use of brownfield land for housing;
- Ensure that new housing development maintains or enhances the quality of the built environment;
- Ensure that new housing development is located so as to conserve energy, reduce the need to travel and be easily served by public transport; and
- Create the opportunities for satisfying the full range of housing needs including enabling, where justified, the provision of affordable housing.

2.12 Policy HOU 9 specifically addresses the issue of settlements in the west of West Lothian. In the towns of Bathgate/Blackburn and Whitburn and in the smaller settlements west of Livingston new land allocations will be brought forward during the structure plan period where:

i. the land supply (including constrained sites) in the towns is likely to be exhausted within five years as a result of increased completion rates; and

ii. The need to support local facilities has been identified and it can be demonstrated that development will provide the necessary support.

2.13 Policy HOU 10 discusses the Five Year Housing Land Supply. It states that The Lothian Councils will maintain an effective five-year land supply for Edinburgh and the Lothians as a whole by supporting the development of housing land consistent with the strategy, including its requirements for essential infrastructure.

2.14 The adequacy of the effective land supply will be assessed against annual monitoring reports prepared by the Councils, which shall take account of the annual Lothian Housing Land Audit and assumptions for future windfall development.

2.15 Where a Council's contribution to the effective five-year supply falls below 90% of its expected contribution, and the shortfall in the Lothian-wide housing land supply is also more than 10%, that Council will bring forward additional land. This land will be found within the core development areas and/or in the locations specified in HOU 9. The land will be brought forward by a local plan alteration or, where this is not possible, by granting planning permission in advance of local plan adoption, provided that the proposals comply with other policies of the structure plan. The infrastructure required to bring forward such sites must either be available or committed.

West Lothian Adopted Local Plan

2.16 The West Lothian Local Plan provides guidance on the location of development across West Lothian, based on meeting the requirement set by the approved Edinburgh and Lothian Structure Plan 2015. Two strategies underpin this local plan. The first is to encourage the economic regeneration of West Lothian and the second is to protect and enhance the district's built and natural heritage. A further overarching theme is to follow the principles of sustainability. This plan is the first district-wide local plan for West Lothian.

2.17 In summary the Local Plan is set out to deliver the following among others:

- Implement the requirements of the Edinburgh and the Lothian Structure Plan 2015 (E&LSP);
- Maintain the development momentum that has revitalised West Lothian and continues to attract high quality investment, including economic development, housing, retailing and other service and leisure-based activities;
- Promote the principle of sustainable developments;
- Protect and enhance the natural and built heritage of West Lothian;
- Enhance the image of West Lothian to assist in attracting economic investment and improving the quality of life for its residents;

2.18 In terms of transportation, Policy TRAN 2 of the adopted local plan states "*Developments will only be permitted where transport impacts are acceptable. This will be established through a Transport Assessment which covers all modes of transport and has been approved by the council".*

2.19 Policy TRAN 3 of the adopted Local Plan states – *"Developers will be required to provide or contribute towards the provisions of travel improvements including traffic and environmental management measures, road networks improvements and measures to promote trips by public transport where these would be justified as a result of new development or redevelopment".*

2.20 Policy TRANS 4 of the adopted Local Plan states – *Where a package of transportation measures of the improvement of an area can be justified by the council and where major new development is proposed, developers seeking planning permission is that area will be;*

- *(i) Required to contribute towards a fund managed by the council for the provision of these measures, or*
- *(ii) Implement an appropriate part of these measures, in proportion to the potential impact of the development on the surrounding transport network*.

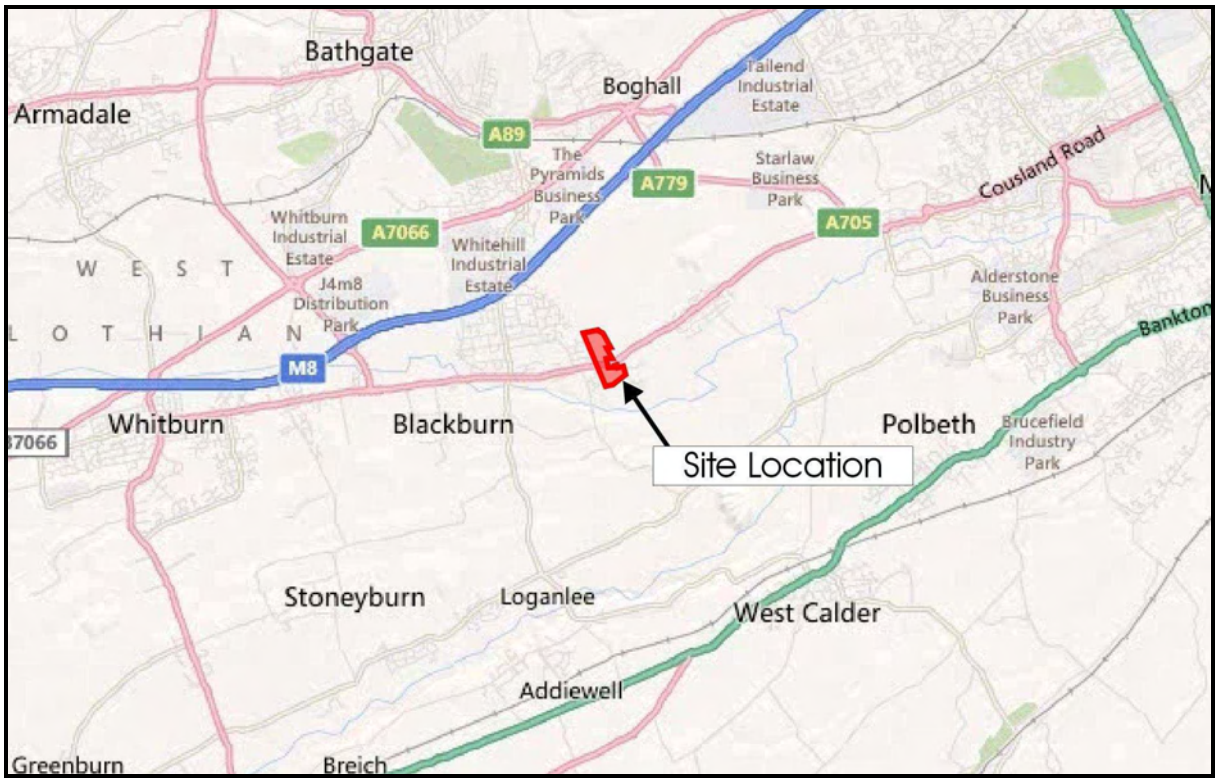
2.21 In summary, the emerging TA takes due cognisance of the aims and objectives of the national and local planning policy identified above in relation to the proposed development and seeks to identify appropriate measures aimed at achieving those aims and objectives.

3 Existing Transport Network

3.1 The development sites are currently vacant and are a mixture of rough grassland and agricultural land and located on the east side of Blackburn. The north site is bounded to the north by a tree belt and forms a natural screen to the countryside belt located beyond, to the east by existing tree belt. The north site is bound to the west by relative dense two storey detached and semi-detached residential development, much of which was built within the lifetime of the current local plan and marks the current eastern settlement boundary of Blackburn and to the south by the A705 Seafield Road.

3.2 The south site is bounded to the west by recently constructed single and two storey housing; to the south and east by agricultural land; and to the north by the A705 Seafield Road. The A705 Seafield Road constitutes as arterial route of Blackburn, linking the town to Livingston to the east and Whitburn to the west. **Figure 3.1** indicates the location of the proposed sites.

Figure 3.1 Extent of Proposed Development Sites



Pedestrians

3.3 The main pedestrian network in the vicinity of the site is along the footways adjacent to the existing local roads. A continuous footway is present on the north side of the A705 Seafield Road adjacent to the northern site. There is currently no footway on the south side of the road immediately adjacent to the south site. The existing footway is approximately 1.5m wide with associated street lighting available. The existing footway currently serves as the main pedestrian link between Blackburn and Seafield village located to the west and east of the site and links to public transport facilities available on the A705 Seafield Road. The standard of footway on the A705 Seafield Road is indicated by **Figure 3.2** overleaf.

Figure 3.2 Standard of Footway on the A705 Seafield Road

3.4 There are informal crossing points on the A705 Seafield Road to the east of the western boundary of both sites. Both are characterised by dropped kerbs, tactile paving and reflective markers; the latter crossing also by a pedestrian refuge in the central carriageway. These are indicated in **Figure 3.3** below.

Figure 3.3 Informal Crossing Points to the West of the Development Sites

Cycling

3.5 There is currently no formal on road cycling facilities located in the vicinity of the sites, however, strategic and local cycle facilities are available to the north of the north site and east of the south site. The National Cycle Route (NCR) 75 is located on the northern boundary of the north site and this provides a link to Edinburgh and numerous cycle links within Livingston.

Public Transport

Bus

3.6 The area surrounding the development sites is served by scheduled bus services. The nearest bus stops to the development are located on the A705 Seafield Road, approximately 300m (from the centre of the sites) west of the western boundary for both sites. Additional bus stops are located approximately 200m east of the northern site and approximately 150m east of the southern site. The nearest bus stops to the development sites are shown in **Figure 3.4** below.

Figure 3.4 Existing Bus Stop Infrastructure Relative to Development Sites

3.7 The route summaries and frequencies of these services are indicated by **Tables 3.1** and **3.2** below. These services provide links to the local residential areas Blackburn, Seafield, Livingston Bus Centre and further afield including Edinburgh.

Table 3.1 Existing Bus Services

Operator	Bus No	Route	Mon-Fri	Sat	Sun
First in Scotland East	21/21A/ 21C	Fauldhouse – Bathgate – Blackburn - Seafield – Livingston Bus terminal – Broxburn - Edinburgh	Every 30mins	Every 30mins	Every 60min
First in Scotland East	X21	Same route as 21Service but with limited stops. However includes stops at Seafield	One AM Service; One PM service	No Service	No Service

Table 3.2 Exiting Bus Services

Operator	Bus No	Route	Mon-Fri	Sat	Sun
First in Scotland East	22	Harthill – Blackburn – Seafield – Livingstone Bus Terminal – Broxburn - Edinburgh	Every 30min	Every 30mins	Every 60min
First in Scotland East	X22	Same route as 22 Service but with limited stops. Includes Seafield	2 AM Services; 2 PM Services	No Service	No Service
E & M Horseburgh	487	Bathgate – Armadale – Seafield – Kirkton - Livingston	3 AM Services; 2 PM Services	No Service	No Service
Blue Bus	501	Howden – Kirkton – Seafield – Blackburn – Whitburn - Blackridge	Every 60mins	Every 60mins	No Service
Blue Bus	701	Livingston – Kirkton – Seafield – Blackburn– Torbothie – Allanton - Wishaw	Every 60mins	Every 60mins	No Service
E & M Horseburgh	X5	Fauldhouse – Whitburn – Blackburn – Seafield – Howden – Haymarket - Edinburgh	One AM Service; One PM service	No Service	No Service

3.8 **Tables 3.1** and **3.2** indicate that the existing bus services at this location provide an aggregate 20 minutes from the identified bus stops. All of these stops are within the recommended maximum walking distance of 400m as suggested by Paragraph B13 of PAN 75.

3.9 It is noted that, whilst the existing footway on the north site and pedestrian crossings provide access to these stops, there are some gaps in the pedestrian provision from the south site.

Rail

3.10 Livingston South Railway Station is located approximately 7km from the proposed development site; as this is greater than the 800m recommended walking distance in PAN 75, walking and cycling trips to the station are unlikely. In terms of bus services that integrate with the rail station, Blue Bus service 701 provides a direct link to the railway station from the bus stops on Seafield Road although this involves a change over at Livingston Bus Centre. Therefore there is scope to promote further linked trips by public transport to the railway station.

Local Road Network

3.11 Immediate access to the wider road network is currently along the A705 Seafield Road. Seafield Road is a single carriageway road with a width of approximately 8m and subject to a 40 mph speed limit although it changes to 30mph approximately 250m east of the development site. It serves as the major route between Blackburn, Seafield and Livingston and the M8 motorway via Whitburn Interchange, which in turn connects to Glasgow and Edinburgh.

4 Proposed Development Characteristics

General

4.1 In accordance with development guidelines the proposed development has been assessed on a people trip basis to identify the likely number of people trips generated by the site and its associated modal split. A number of mechanisms are currently available to calculate people trips and mode of transport for a development including census data and the TRICS database. For the purposes of this development, the people trip generation has been calculated using the TRICS database with the mode share determined using local travel to work census data.

Proposed Development

People Trip Generation

4.2 In accordance with current guidance, the proposed development has been assessed on a people trip basis to identify the likely number of people trips generated by the site and its associated modal split.

4.3 The TRICS database version 2012(a) v6.9.1 has been interrogated under the 'Residential' and 'Houses Privately Owned' categories to identify the ratio of people trip arrivals and departures for the Weekday AM and PM Peak respectively.

4.4 The estimated trip generation and resultant trip rates for up to 170 residential units are indicated in **Table 4.1** below

Table 4.1 People Trip Generation

	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
People Trip Rate	0.27	0.82	1.08	0.66	0.43	1.09
Trip Generation North Site (120 units)	32	98	130	79	52	131
Trip Generation South Site (50 units)	13	41	54	33	22	55
Total People Trips (170 Units)	**45**	**139**	**184**	**112**	**74**	**186**

Source: TRICS 2012(a)

4.5 **Table 4.1** above indicates that the development will generate 184 and 186 two – way people trips during the weekday AM and PM peak periods respectively.

Vehicle Trip generation

4.6 The proposed vehicle trip generation characteristics for the proposed development have been derived by applying a mode share obtained from Scotland's CENSUS 2001. Table KS15 "Travel to Work and Place of Study" which consists of all people aged 16-74 in employment or studying though excluding those who work from home, for Blackburn ward has been used. The mode split for the proposed north development is shown below in **Table 4.2** below.

Table 4.2 Estimated Modal Split for Proposed North Development

Mode	Percentage Split	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
On Foot	11%	4	11	15	9	6	15
Bicycle	1%	0	1	1	1	0	1
Train	2%	1	2	2	1	1	2
Bus	13%	4	13	17	10	7	17
Passenger in a Car	13%	4	13	17	10	7	17
Driving a Car or Van	59%	19	58	76	46	31	77
Other	1%	0	1	1	1	0	1
Total	**100%**	**32**	**98**	**130**	**79**	**52**	**131**

Source: Scotland's Census 2001 Table KS15 Blackburn Ward

4.7 **Table 4.2** demonstrates that the proposed north development will generate 76 and 77 two-way vehicle trips during the weekday AM and PM peak periods. The above table also demonstrates that the proposed north development will generate 11 and 12 two-way bus trips during the weekday AM and PM peaks while there will be 10 two-way walking trips during both the weekday AM and PM peak periods.

4.8 The mode split for the proposed south development is shown below in **Table 4.3** below.

Table 4.3 Estimated Mode Split for South Development

Mode	Percentage Split	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
On Foot	11%	1	5	6	4	2	6
Bicycle	1%	0	0	0	0	0	0
Train	2%	0	1	1	1	0	1
Bus	13%	2	5	7	4	3	7
Passenger in a Car	13%	2	5	7	4	3	7
Driving a Car or Van	59%	8	24	32	19	13	32
Other	1%	0	0	0	0	0	0
Total	**100%**	**13**	**41**	**54**	**33**	**22**	**55**

Source: Scotland's Census 2001 Table KS15 Blackburn Ward

4.9 **Table 4.3** demonstrates that the proposed south development will generate 32 two-way vehicle trips during both the weekday AM and PM peak periods respectively. The above table also demonstrates that the proposed south development will generate 7 two-way bus trips during both the weekday AM and PM peaks while there will be 12 two-way walking trips during both the weekday AM and PM peak periods.

4.10 A full breakdown of the TRICS and Census data results are indicated by **Appendix B** at the end of this report.

5 Measures to Support the Proposed Development

5.1 The proposed development consists of 170 residential units on two parcels of land located to the north and south of the A705 Seafield Road.

Pedestrian Provision

5.2 It is anticipated that the north and south sites of the proposed development will generate up to 30 and 12 additional pedestrian movements respectively during the peak periods onto the exiting pedestrian network in the surrounding area.

5.3 It is proposed to provide a new section of pedestrian footway along the south side of the A705 Seafield Road to address the existing gap in provision. This new section of footway would extend from the south site access of the proposed development to link the existing footways located to the west of the south site towards Blackburn. This can be achieved by providing a new 2.0m wide footway on the existing grass verge along the south side of the A705 Seafield Road as indicated by **JMP drawing SCT3497/Figure 1** in **Appendix D**. It must be noted that this would involve a combination of land within the control of the applicant and the publicly adopted verge. In association with the proposed development access, dropped kerbs will be provided to support pedestrian crossing movements from the south site to the footway located on the north site of the A705 Seafield Road. This will cater for the anticipated pedestrian trips heading towards Seafield.

5.4 The existing footway located on the north side of the A705 Seafield Road is approximately 1.5m wide and of a suitable standard, however to further enhance walking opportunities to the site, it is proposed to widen this footway to 2m along the development frontage. In association with the measures outlined above shall provide the infrastructure to accommodate any additional walking trips associated with the proposed development and will provide a means to access the wider pedestrian network.

5.5 To accommodate pedestrian trips associated within the development, footpaths will be provided throughout the development, which will link to the existing and proposed pedestrian footways. The internal network of footways and footpaths will link with the main pedestrian access points and where appropriate, these footways and footpaths will be designed for shared use by pedestrians and cyclists.

5.6 These improvements will ensure that the proposed development is well connected to the existing footway provision and links provided to bus stops.

5.7 Guidance set out in “Transport Assessment and Implementation: A Guide (2005)” (TAIG) indicates that a 20-30 minute journey time by foot to local facilities is acceptable. Walking isochrones for 10, 20 and 30 minute walking times are provided in **Appendix C** at the end of this report. These indicate that local shops and public transport facilities are all within a reasonable walk the development site confirming that the site is accessible by walking.

Cycling

5.8 As indicated in Chapter 3 of the report, whilst there are currently no formal on road cycling facilities located in the vicinity of the site, local cycle facilities are available to the north of the north site and east of the south site. It is noted that the National Cycle Route (NCR) 75 is located on the northern boundary of the north site and this provides a link to Edinburgh and numerous cycle links within Livingston.

5.9 Notwithstanding this, it is unlikely that the proposed development will generate a significant number of cycle trips other than for leisure purposes. It is therefore not proposed to provide any specific cyclist facilities as part of the proposed development although, to promote cycling as an alternative mode of travel to the private car, the internal site layout will be designed to accommodate cycle movements and a cycle link will also be provided to tie in to the to the local cycle route located on the northern boundary of the north site.

5.10 It should be noted that all other cycling movements would occur on-street. This is still consistent with PAN 75 which states that the majority of cycling for the foreseeable future will take place on the local road network.

5.11 As a measurement of accessibility by cycling, the Scottish Executive publication "Transport Assessment and Implementation: A Guide" (August 2005) identifies that journey times of 30 to 40 minutes are appropriate for cycling which, assuming an average cycling speed of 16km/hr, equates to a potential cycling catchment of 8 to 10km from the proposed development.

5.12 Assuming a cycling speed of 16km/hour, cycling isochrones demonstrating the areas within 10, 20 and 30 minutes of the site are indicated by **Appendix C** at the end of this report. These isochrones clearly demonstrate that the majority of the development site is within a 10min to 20min cycle of the site and surrounding areas such as Blackburn and Livingston are all within cycling distance of the development site. It is considered that the site is accessible by cycle.

Public Transport

5.13 As indicated in chapter 2 of this report, the nearest bus stops to the development are located on the A705 Seafield Road, approximately 300m (from the centre of the sites) west of the western boundary for both sites. Additional bus stops are located approximately 200m east of the northern site and approximately 150m east of the southern site.

5.14 The services described in **Tables 3.1** and **3.2** demonstrate that this site is afforded good accessibility by bus. Furthermore, these services will provide frequent links to adjacent town centres where further services, including rail, are available. It is therefore considered that the existing public transport provision is sufficient to accommodate the needs of the proposed development.

5.15 It is anticipated that the proposed development will generate an additional 24 bus trips hence the current level of bus service provision is considered sufficient to accommodate the anticipated increase in trips.

Parking Provision

5.16 The size of the proposed dwellings (i.e. number of bedrooms) is not known at this stage. However, we would confirm that the parking provision for the development will be provided in accordance with West Lothian Council's Guidelines for Development Roads.

5.17 The detailed layout of the development will be designed to accommodate normal service vehicle manoeuvres within the site, as required under standard operational conditions for a typical residential development.

Development Access

5.18 It is proposed to take direct access by means of a compact roundabout on the A705 between the north and south sites. The proposed access roundabout and the internal road layout to serve the proposed development will be designed in accordance with the standards provided in the Design Manual for Roads and Bridges (DMRB), "Designing Streets", and the standards provided in West Lothian Development Guidelines. The preliminary layout is contained in **Appendix D** of this report.

Framework Residential Travel Plan

5.19 While the majority of Travel Plans are produced for commercial and employment based developments, they can also play a large part in securing a modal shift away from private car based trips for residential developments also.

5.20 In accordance with WLC's supplementary planning guidance it is recommended that a welcome pack (Sustainable Travel Information Pack (IP)) is produced to increase awareness of the availability of more sustainable forms of transport. This will be achieved by providing information on the existing public transport provision including routes and frequencies of services. It will also contain a map indicating any cycle routes that are available within a short distance from their home.

5.21 It is recommended that the welcome pack is issued to the residents immediately upon them moving into their new home, therefore advising them of sustainable transport at the earliest possible opportunity.

5.22 It is noted that the pack is to be produced by the developer and requires council approval as part of planning consent and that Residential developments will contribute towards the cost of funding the Council's Travel Coordinator through a contribution per dwelling.

6 Assessment of Development Impact

6.1 This chapter details the assessment of development traffic impact on the local road network including the trip generation potential of the development, the distribution of these trips and the potential impact on external junctions.

Base Traffic Data

6.2 To identify the existing level of traffic on the surrounding local road network, Traffic surveys/ATC surveys were undertaken in April 2012 of the B792 Bathgate Road/B792 Blackburn Road/W Main Street junction and at a location in the vicinity of the proposed sites.

6.3 The junction survey results identified the following Weekday AM and PM Saturday Peak periods on the local road network adjacent to the site.

- Weekday AM Peak 08:00 to 09:00; and
- Weekday PM Peak 16:30 to 17:30.

6.4 The 2012 Weekday AM and PM surveyed base traffic flows for the above junctions are indicated by **Figures 1** and **2** respectively contained within **Appendix E** of this report.

Assessment Years

6.5 The proposed development is likely to be completed in 2017. Therefore it is proposed to assess the development for the final completion year of 2017.

6.6 To factor base year flows to design year flows NRTF 'Low' Growth has been considered to be appropriate for the local road network adjacent to the site. The resultant growth factor adopted for the purpose of assessment is indicated by **Table 6.1**.

Table 6.1 NRTF Low Growth Factors

Year	Index	Traffic Growth Factors	
2012	1.1844		
2017	1.2484	2012 - 2017	1.054

Source: NRTF Growth Factors

6.7 The resultant 2017 Weekday AM and PM factored base traffic flows are indicated by **Figures 3** and **4** respectively contained within **Appendix E** of this report.

Distribution and Assignment

6.8 In distributing the development trips onto the adjacent road network, it is proposed that the existing two way flow splits on the A805 Seafield Road in the vicinity of the site and the turning movements at the B792 Blackburn Road/West Main Street/B792 Bathgate Road Signalised junction to west of the site of the site. It is considered that this would present a fair indication of the distribution of residential traffic generated by the development.

6.9 The resultant assignment of the development generated traffic for the Weekday AM and PM Peak periods are indicated by **Figures 5** and **6** respectively contained within **Appendix E** of this report.

Area of Influence

6.10 Initial discussions with West Lothian Council indicated that the area of influence considered would extend to the B792 Blackburn Road/West Main Street/B792 Bathgate Road Signalised junction. Therefore the junction assessment has been undertaken for only the B792 Blackburn Road/West Main Street/B792 Bathgate Road Signalised junction and the proposed access roundabout.

Junction Assessment

6.11 The assessment of the proposed development considers the following traffic scenarios for both the Weekday PM and Saturday Peak periods:

- 2012 Base;
- 2017 Base; and
- 2017 Base plus Development.

6.12 The assessment of the junctions has been undertaken using Linsig 3 for traffic signals and ARCADY 6 for roundabouts which are industry standard tools. The results of the assessment of the junction for all scenarios are indicated by **Table 6.2** and **Table 6.4** for the Weekday and PM Peak periods respectively.

Blackburn Road/West Main Street/B792 Bathgate Road

Table 6.2 Blackburn Road/West Main Street/B792 Bathgate Road – AM Peak

		2012 AM Base		2017 AM Base		2017 AM Base plus Development	
Link Number	Lane Description	DoS(%)	Max Q	DoS(%)	Max Q	DoS(%)	Max Q
1/1	West Main St W Ahead	84.2%	16	88.7%	18	90.1%	19
1/2	West Main St W Right	35.7%	5	37.6%	5	37.6%	5
2/1	West Main St E Ahead Left	71.3%	8	75.3%	8	78.3%	9
3/2+3/1	B792 Left Right	83.1%	7	88.0%	8	88.0%	8
6/1+6/2	Bathgate Road Right Left	81.3%	9	85.8%	10	89.8%	11
7/1	West Main St E Ahead	79.8%	9	84.1%	9	85.4%	10
7/2	West Main St E Right	45.2%	4	47.5%	4	48.7%	4
8/1	Left Ahead	73.4%	15	77.5%	16	78.3%	17

Table 6.3 Blackburn Road/West Main Street/B792 Bathgate Road – PM Peak

		2012 PM Base		2017 PM Base		2017 PM Base plus Development	
Link Number	Lane Description	DoS(%)	Max Q	DoS(%)	Max Q	DoS(%)	Max Q
1/1	West Main St W Ahead	87.4%	12	92.1%	14	92.2%	15
1/2	West Main St W Right	46.3%	5	48.7%	5	46.4%	5
2/1	West Main St E Ahead Left	81.1%	15	85.5%	16	88.3%	17
3/2+3/1	B792 Left Right	84.7%	8	89.5%	9	93.3%	11
6/1+6/2	Bathgate Road Right Left	83.7%	9	88.3%	10	93.0%	12
7/1	West Main St E Ahead	87.6%	16	92.3%	19	93.4%	20
7/2	West Main St E Right	35.6%	4	37.6%	5	37.9%	5
8/1	Left Ahead	68.2%	10	71.9%	11	74.5%	12

6.13 The above results indicate that the Blackburn Road/West Main Street/B792 Bathgate Road traffic signal controlled junction currently operates within capacity in the 2012 base year for both the AM and PM peaks. In the future year scenario of 2017, the junction operates within capacity in the AM peak but operates slightly over capacity in the PM peak with anticipated maximum queuing of 18 and 19 vehicles in both the AM and PM peaks.

6.14 However, on the addition of development traffic, it is noted the Blackburn Road/West Main Street/B792 Bathgate Road signal controlled junction will generally operate at capacity (DoS around 90%) during the AM peak but continue to operate over capacity in the PM peak albeit marginally.

6.15 We would comment that, whilst there is an increase in the DoS at the junction, it should be noted that the maximum increase in queues of 1 pcu and 2 pcus during the weekday AM and PM periods is considered to be insignificant and therefore no mitigation measures are required. We would also comment that the increase in queues does not impact on any junctions or accesses.

Proposed Development Access

Table 6.4 Roundabout Assessment

	2017 AM Base + Development		2017 PM Base + Development	
	MAX RFC	Q	MAX RFC	Q
A: Seafield Road West	0.575	1	0.444	1
B: North Access	0.067	0	0.030	0
C: Seafield Road East	0.333	1	0.661	2
D: South Access	0.056	0	0.038	0

6.16 The above results indicate that with the addition of full development traffic, the proposed development access roundabout will operate within capacity with no significant queues during the forecast 2017 year of opening Weekday AM and PM Peak periods respectively.

7 Conclusions

7.1 JMP Consultants Ltd (JMP) has been commissioned by Hallam Land Management to undertake a Transport Assessment (TA) in support of a proposed residential development consisting of up to 120 units at Seafield Road, Blackburn West Lothian. It is anticipated that the north site will contain up to 70 units and the south site up to 50 units. However, for the purpose of this report and to ensure a robust assessment, the traffic impact assessment has been undertaken for up to 170 units.

7.2 The proposed development has been assessed under sustainable principles with the traffic generated by all modes of transport including walking, cycling and public transport calculated using a combination of TRICS and Census data.

7.3 The results of a people trip assessment undertaken for the proposed development site indicate that the overall development is likely to generate in the region of 185 and 186 two-way people trips during the Weekday AM and PM Peak periods respectively.

7.4 Of the above people trips, in the region of 108 and 109 two-way trips during the Weekday AM and PM Peak periods respectively are likely to be new vehicle trips.

Sustainable Modes

Walking, Cycling and Public Transport

7.5 To promote walking as a viable alternative to the private car, it is proposed to provide a new pedestrian footway along the south side of the A705 Seafield Road from the south site access to the existing footway located to the south site towards Blackburn. This would involve a combination of land within the control of the applicant and the publicly adopted verge. It is also proposed to widen the existing footway on the north side of Seafield Road along the development frontage. In association with the proposed development access, dropped kerbs will be provided to support pedestrian crossing movements from the south site to the footway located on the north site of the A705 Seafield Road. This will help to integrate the proposed development with the existing pedestrian network and ensure excellent access to the site for those on foot.

7.6 With regard to cycling and public transport trips, this report has concluded that the existing facilities by each mode can accommodate the additional trips that would be generated by the development.

7.7 In view of the above, we would conclude that, under sustainable principles, the report has demonstrated that the proposed development will integrate well with the existing network with access for pedestrians, cyclists, public transport users all catered for.

Development Vehicular Access

7.8 It is proposed to take direct access by means of a compact roundabout on the A705 between the north and south sites. The proposed access roundabout and the internal road layout to serve the proposed development will be designed in accordance with the standards provided in the Design Manual for Roads and Bridges (DMRB), “Designing Streets”, and the standards provided in West Lothian Development Guidelines.

7.9 A detailed assessment undertaken has demonstrated that the proposed access strategy is an appropriate form of junction to serve the proposed development. The results of the junction assessments undertaken have indicated that, with the addition of development traffic, the proposed access junction will operate within capacity in the 2017 year of opening for both Weekday AM and PM peaks respectively.

Development Vehicular Impact

7.10 Detailed assessments have been undertaken for the B792 Bathgate Road/B792 Blackburn Road/W Main Street signalised junction that was identified as falling within the agreed area of influence for the proposed development. The results indicate that the development traffic can be accommodated at this junction without the need for any mitigating measures.

7.11 In summary, it is considered that the proposed development can be integrated with the existing transport network and vehicular impacts accommodated so that there is no material detriment to existing road users.

Appendix A

Indicative Development Layout

Appendix A

Indicative Development Layout

INDICATIVE MASTERPLAN

Area Measurements

***Area 1**: Gross Area : 3Ha (7.4 acres)*

Approx No. Units = 65

Approx density = 8.8 per acre
= 21.6 per Ha

***Area 2**: Gross Area: 3.5Ha (8.6 acres)*

Approx No. Units = 55

Approx density = 6.4 per acre
= 15.7 per Ha

***Total Gross Site Area:** 6.5Ha (16 acres)*

Approx No. Units = 120

Approx density = 7.5 per acre
= 18.4 per Ha

LEGEND:

- *Existing Main Road*
- *Proposed SUDS location*
- *Proposed Open Space*
- *Proposed Lower Density Housing*
- *Proposed Higher Density Housing*
- *Proposed Tree Planting*
- *Proposed Pedestrian Link*
- *Existing Power Lines*
- *Sensitive Boundary Conditions*
- *Proposed Primary Access Roads*
- *Existing Drainage*
- *Proposed Secondary Roads*
- *Proposed Emergency Access*
- *Proposed Frontage Direction*
- *Existing Trees*
- *Indicative Power Line Wayleave*
- *Proposed Access Roundabout*
- *Existing Development Areas*
- *Proposed Play Areas*

0m 20m 40m 60m 80m 100m

N

Indicative Masterplan

Indicative Masterplan - Land at Blackburn, West Lothian

Land at Blackburn, West Lothian.

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Appendix B

TRICS Output and Census Data

Appendix B

TRICS Output and Census Data

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE

Selected regions and areas:

05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	2 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	2 days
	WO	WORCESTERSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	2 days
08	NORTH WEST		
	CH	CHESHIRE	2 days
09	NORTH		
	CB	CUMBRIA	1 days
10	WALES		
	CF	CARDIFF	1 days
11	SCOTLAND		
	EA	EAST AYRSHIRE	1 days
	HI	HIGHLAND	2 days
	PK	PERTH & KINROSS	1 days
	SR	STIRLING	1 days
12	CONNAUGHT		
	CS	SLIGO	1 days
	GA	GALWAY	3 days
	MA	MAYO	1 days
13	MUNSTER		
	CR	CORK	1 days
	WA	WATERFORD	2 days
14	LEINSTER		
	KD	KILDARE	1 days
	KK	KILKENNY	1 days
17	ULSTER (NORTHERN IRELAND)		
	AN	ANTRIM	1 days

Filtering Stage 2 selection:

Parameter:	Number of dwellings
Actual Range:	9 to 290 (units:)
Range Selected by User:	4 to 437 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/04 to 20/12/11

Selected survey days:

Monday	5 days
Tuesday	8 days
Wednesday	4 days
Thursday	5 days
Friday	6 days

Selected survey types:

Manual count	28 days
Directional ATC Count	0 days

Selected Locations:

Suburban Area (PPS6 Out of Centre)	16
Edge of Town	12

Selected Location Sub Categories:

Residential Zone	20
Built-Up Zone	1
No Sub Category	7

Filtering Stage 3 selection:

Use Class:

C3	28 days

Population within 1 mile:

1,001 to 5,000	3 days
5,001 to 10,000	5 days
10,001 to 15,000	8 days
15,001 to 20,000	6 days
20,001 to 25,000	2 days
25,001 to 50,000	4 days

Population within 5 miles:

5,001 to 25,000	4 days
25,001 to 50,000	3 days
50,001 to 75,000	8 days
75,001 to 100,000	6 days
100,001 to 125,000	6 days
125,001 to 250,000	1 days

Car ownership within 5 miles:

1.1 to 1.5	28 days

Travel Plan:

No	28 days

LIST OF SITES relevant to selection parameters

1 AN-03-A-07 THE CEDARS, ANTRIM ANTRIM
CASTLE WAY

ANTRIM
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 55
Survey date: TUESDAY 20/12/11 Survey Type: MANUAL

2 CB-03-A-02 SEMI DETACHED, WORKINGTON CUMBRIA
HAWKSHEAD AVENUE

WORKINGTON
Edge of Town
Residential Zone
Total Number of dwellings: 40
Survey date: MONDAY 20/06/05 Survey Type: MANUAL

3 CF-03-A-02 MIXED HOUSES, CARDIFF CARDIFF
DROPE ROAD

CARDIFF
Edge of Town
Residential Zone
Total Number of dwellings: 196
Survey date: FRIDAY 05/10/07 Survey Type: MANUAL

4 CH-03-A-05 DETACHED, CREWE CHESHIRE
SYDNEY ROAD
SYDNEY
CREWE
Edge of Town
Residential Zone
Total Number of dwellings: 17
Survey date: TUESDAY 14/10/08 Survey Type: MANUAL

5 CH-03-A-06 SEMI-DET./BUNGALOWS,CREWE CHESHIRE
CREWE ROAD

CREWE
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 129
Survey date: TUESDAY 14/10/08 Survey Type: MANUAL

6 CR-03-A-01 BUNGALOWS, CORK CORK
CURRAGH ROAD
TURNER'S CROSS
CORK
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 48
Survey date: THURSDAY 08/12/05 Survey Type: MANUAL

7 CS-03-A-02 DETACHED, SLIGO SLIGO
CHURCH HILL

SLIGO
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 35
Survey date: THURSDAY 14/06/07 Survey Type: MANUAL

8 EA-03-A-01 DETATCHED, KILMARNOCK EAST AYRSHIRE
TALISKER AVENUE

KILMARNOCK
Edge of Town
Residential Zone
Total Number of dwellings: 39
Survey date: THURSDAY 05/06/08 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9 GA-03-A-01 SEMI DETACHED, GALWAY GALWAY
HEADFORD ROAD
KNOCKAYARRAGH
GALWAY
Edge of Town
No Sub Category
Total Number of dwellings: 123
Survey date: WEDNESDAY 20/09/06 Survey Type: MANUAL

10 GA-03-A-02 TERRACED, GALWAY GALWAY
BOHERMORE
TOWNPARKS
GALWAY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 185
Survey date: TUESDAY 19/09/06 Survey Type: MANUAL

11 GA-03-A-03 SEMI DET./TERRACED, GALWAY GALWAY
MONEENEGEISHA ROAD
WELLPARK
GALWAY
Suburban Area (PPS6 Out of Centre)
Built-Up Zone
Total Number of dwellings: 24
Survey date: WEDNESDAY 20/09/06 Survey Type: MANUAL

12 HI-03-A-13 HOUSING, INVERNESS HIGHLAND
KINGSMILLS ROAD

INVERNESS
Edge of Town
Residential Zone
Total Number of dwellings: 9
Survey date: THURSDAY 21/05/09 Survey Type: MANUAL

13 HI-03-A-14 SEMI-DETACHED, INVERNESS HIGHLAND
CALEDONIAN ROAD
DALNEIGH
INVERNESS
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 73
Survey date: FRIDAY 13/05/11 Survey Type: MANUAL

14 KD-03-A-02 TERRACED/SEMI-D., NEWBRIDGE KILDARE
CEDARWOOD PARK
MORRISTOWN ROAD
NEWBRIDGE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 71
Survey date: TUESDAY 12/05/09 Survey Type: MANUAL

15 KK-03-A-03 MIXED HOUSING, KILKENNY KILKENNY
FRESHFORD ROAD
FRIARSINCH
KILKENNY
Edge of Town
Residential Zone
Total Number of dwellings: 70
Survey date: WEDNESDAY 26/11/08 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

16 LN-03-A-01 MIXED HOUSES, LINCOLN LINCOLNSHIRE
BRANT ROAD
BRACEBRIDGE
LINCOLN
Edge of Town
Residential Zone
Total Number of dwellings: 150
Survey date: TUESDAY 15/05/07 Survey Type: MANUAL

17 LN-03-A-02 MIXED HOUSES, LINCOLN LINCOLNSHIRE
HYKEHAM ROAD

LINCOLN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 186
Survey date: MONDAY 14/05/07 Survey Type: MANUAL

18 MA-03-A-01 SEMI-DET. & TERRACED,BALLINA MAYO
N26 STATION ROAD

BALLINA
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 74
Survey date: FRIDAY 15/07/11 Survey Type: MANUAL

19 NY-03-A-05 HOUSES AND FLATS, RIPON NORTH YORKSHIRE
BOROUGHBRIDGE ROAD

RIPON
Edge of Town
No Sub Category
Total Number of dwellings: 71
Survey date: MONDAY 22/09/08 Survey Type: MANUAL

20 NY-03-A-06 BUNGALOWS/SEMI DET., BBDGE NORTH YORKSHIRE
HORSEFAIR

BOROUGHBRIDGE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 115
Survey date: FRIDAY 14/10/11 Survey Type: MANUAL

21 PK-03-A-01 DETAC. & BUNGALOWS, PERTH PERTH & KINROSS
TULLYLUMB TERRACE
GORNHILL
PERTH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 36
Survey date: WEDNESDAY 11/05/11 Survey Type: MANUAL

22 SH-03-A-03 DETATCHED, SHREWSBURY SHROPSHIRE
SOMERBY DRIVE
BICTON HEATH
SHREWSBURY
Edge of Town
No Sub Category
Total Number of dwellings: 10
Survey date: FRIDAY 26/06/09 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

23 SH-03-A-04 TERRACED, SHREWSBURY SHROPSHIRE
ST MICHAEL'S STREET

SHREWSBURY
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 108
Survey date: THURSDAY 11/06/09 Survey Type: MANUAL

24 SR-03-A-01 DETACHED, STIRLING STIRLING
BENVIEW

STIRLING
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 115
Survey date: MONDAY 23/04/07 Survey Type: MANUAL

25 WA-03-A-01 DET./SEMI-DET., WATERFORD WATERFORD
DUNMORE ROAD

WATERFORD
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 70
Survey date: TUESDAY 18/11/08 Survey Type: MANUAL

26 WA-03-A-02 DETACHED, WATERFORD WATERFORD
MAYPARK LANE

WATERFORD
Edge of Town
Residential Zone
Total Number of dwellings: 290
Survey date: MONDAY 17/11/08 Survey Type: MANUAL

27 WO-03-A-02 SEMI DETACHED, REDDITCH WORCESTERSHIRE
MEADOWHILL ROAD

REDDITCH
Edge of Town
No Sub Category
Total Number of dwellings: 48
Survey date: TUESDAY 02/05/06 Survey Type: MANUAL

28 WO-03-A-03 DETACHED, KIDDERMINSTER WORCESTERSHIRE
BLAKEBROOK
BLAKEBROOK
KIDDERMINSTER
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 138
Survey date: FRIDAY 05/05/06 Survey Type: MANUAL

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	28	90	0.115	28	90	0.371	28	90	0.486
08:00 - 09:00	28	90	0.265	28	90	0.819	28	90	1.084
09:00 - 10:00	28	90	0.272	28	90	0.382	28	90	0.654
10:00 - 11:00	28	90	0.225	28	90	0.272	28	90	0.497
11:00 - 12:00	28	90	0.272	28	90	0.304	28	90	0.576
12:00 - 13:00	28	90	0.307	28	90	0.328	28	90	0.635
13:00 - 14:00	28	90	0.344	28	90	0.330	28	90	0.674
14:00 - 15:00	28	90	0.340	28	90	0.315	28	90	0.655
15:00 - 16:00	28	90	0.546	28	90	0.358	28	90	0.904
16:00 - 17:00	28	90	0.571	28	90	0.431	28	90	1.002
17:00 - 18:00	28	90	0.657	28	90	0.433	28	90	1.090
18:00 - 19:00	28	90	0.510	28	90	0.370	28	90	0.880
19:00 - 20:00	1	73	0.000	1	73	0.000	1	73	0.000
20:00 - 21:00	1	73	0.000	1	73	0.000	1	73	0.000
21:00 - 22:00	1	73	0.000	1	73	0.000	1	73	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			4.424			4.713			9.137

Parameter summary

Trip rate parameter range selected:	9 - 290 (units:)
Survey date date range:	01/01/04 - 20/12/11
Number of weekdays (Monday-Friday):	28
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

All people aged 16 - 74 in employment or studying

Area	All people aged 16-74 in employment or studying	Percentage of people aged 16-74 in employment or studying who: Work or study mainly at or from home	Travel to place of work or study by: Underground, metro, light rail, tram	Train	Bus, minibus or coach	Motorcycle, scooter or moped	Driving a car or van	Passenger in a car or van	Taxi or minicab	Bicycle	On foot	Other	Average distance (km) travelled to place of work or study [1]	Percentage of public transport users in households [2]: With car or van	Without car or van
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
Scotland	2510494	6.07	0.43	3.45	13.95	0.46	50.03	8.29	0.77	1.44	14.07	1.04	12.58	63.18	36.82
Blackburn	2546	4.6	0.08	1.69	12.41	0.31	56.09	12.61	0.2	0.63	10.72	0.67	12.87	66.48	33.52

Footnotes:

1 Excludes working or studying at home, no fixed place, working at offshore installation, working or studying outside the UK.

2 Public transport includes underground, metro, light rail, tram, train, bus, minibus or coach.

3 'Works or studies' means all people aged 16 to 74 who work or study mainly at or from home, at no fixed place or travel to a place of work or study.

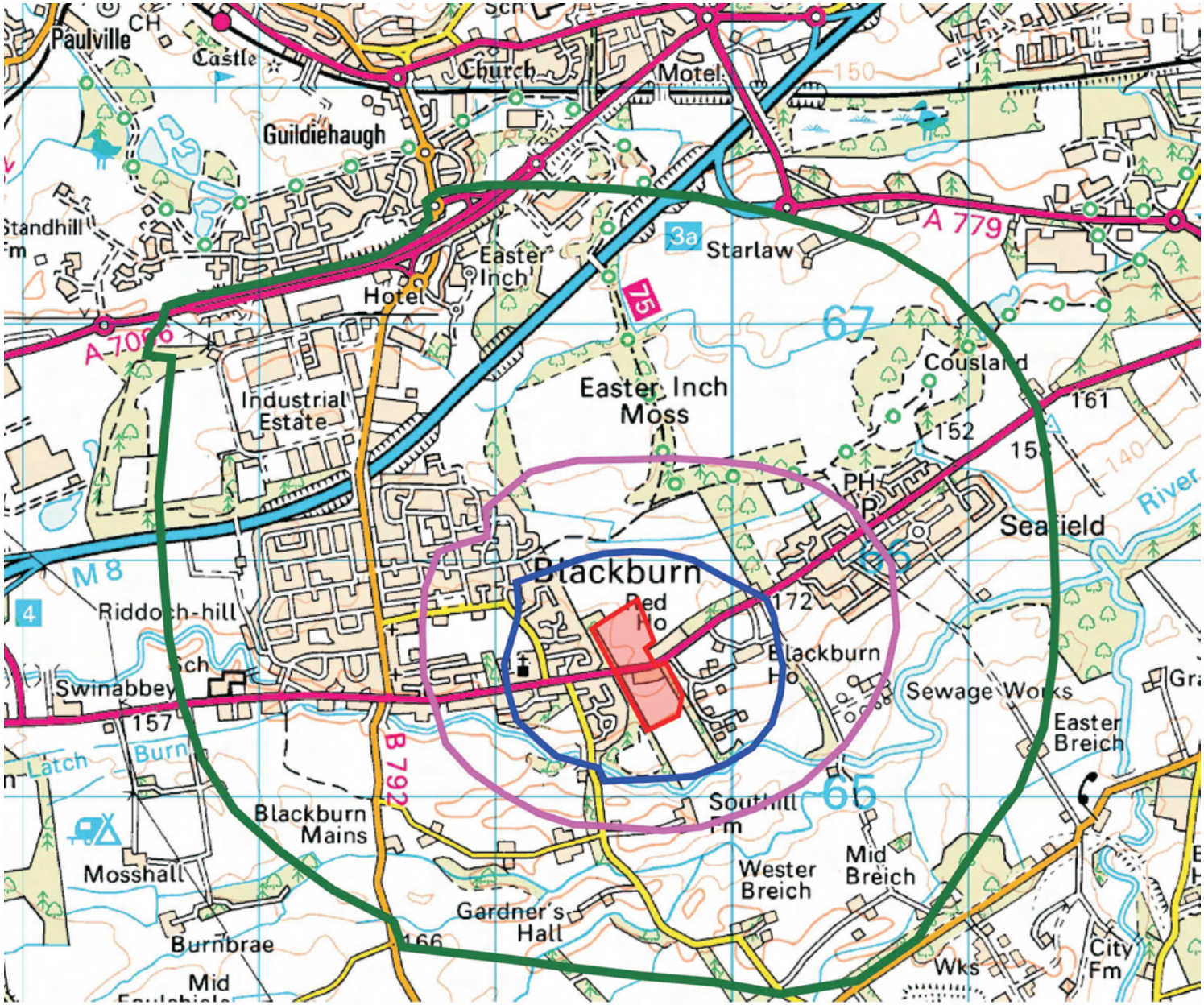
		Rebased
Underground, metro, light rail, tram	0.08	0%
Train	1.69	2%
Bus, minibus or coach	12.41	13%
Motorcycle, scooter or moped	0.31	0%
Driving a car or van	56.09	59%
Passenger in a car or van	12.61	13%
Taxi or minicab	0.2	0%
Bicycle	0.63	1%
On foot	10.72	11%
Other	0.67	1%
	95.41	100%

Appendix C

Walking and Cycling Isochrones

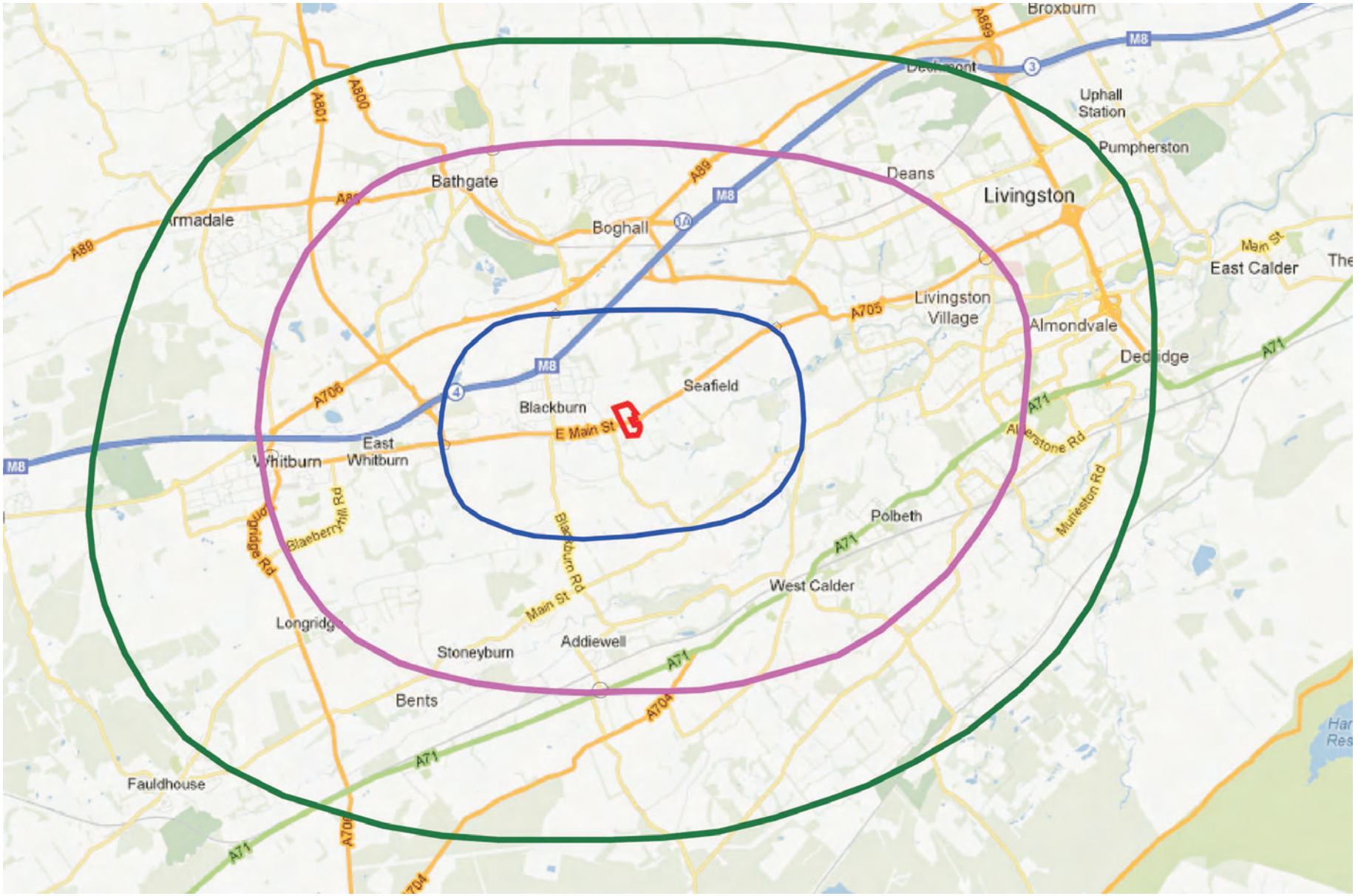
Appendix C

Walking and Cycling Isochrones



Walking Isochrone

figure 1



Cycling Isochrone

figure 2

Appendix D

Site Access Layout & Proposed Improvements

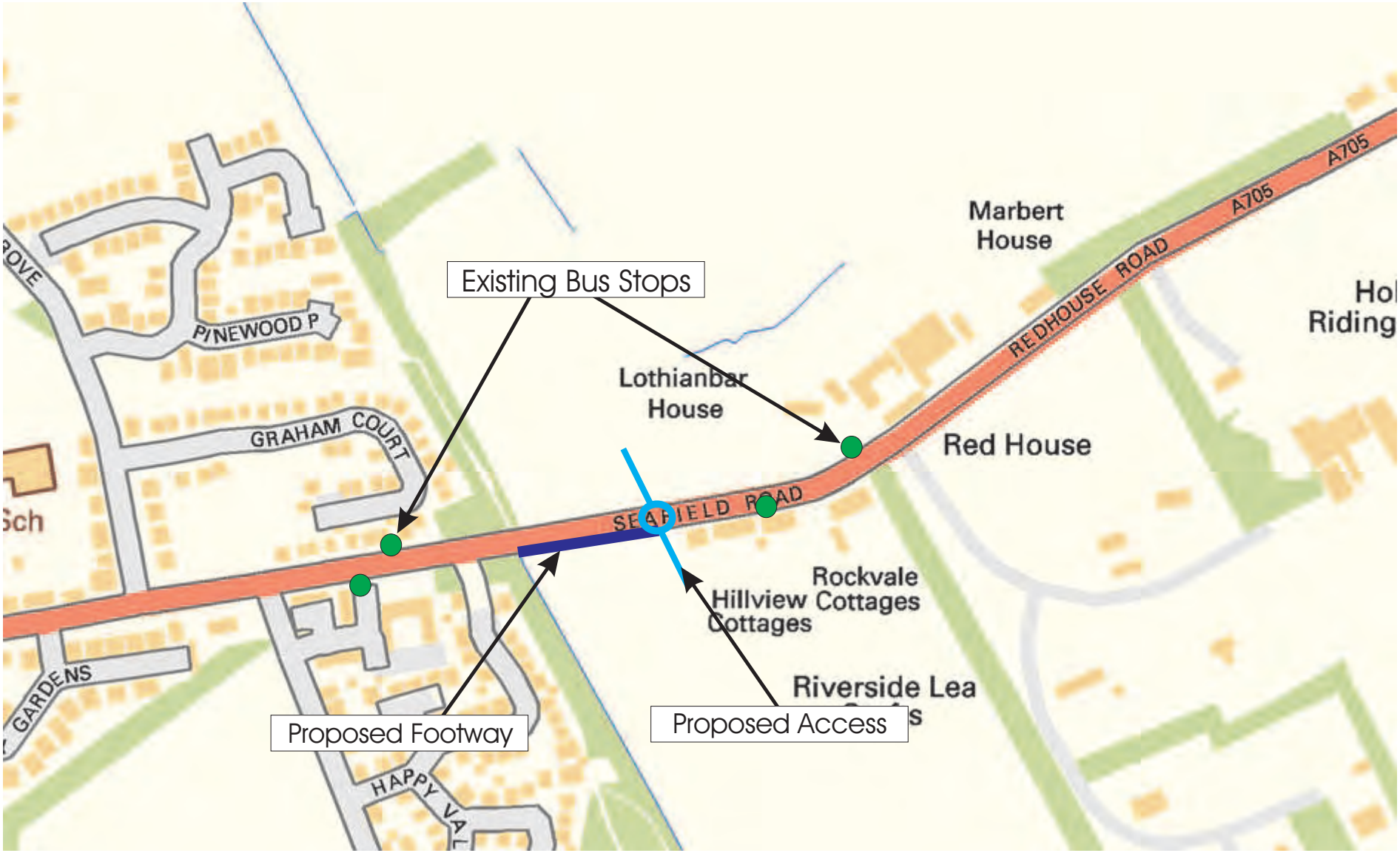
Appendix D

Site Access Layout & Proposed Improvements

Ref: U:\SCT\2012\SCT3475-3599\SCT3497_SeafieldRdBlackburn\DRAWINGS\PRELIMINARY\stagger.dwg

Compact roundabout - single lane entry

Figure 3



Ref : A0xxxxx Site location

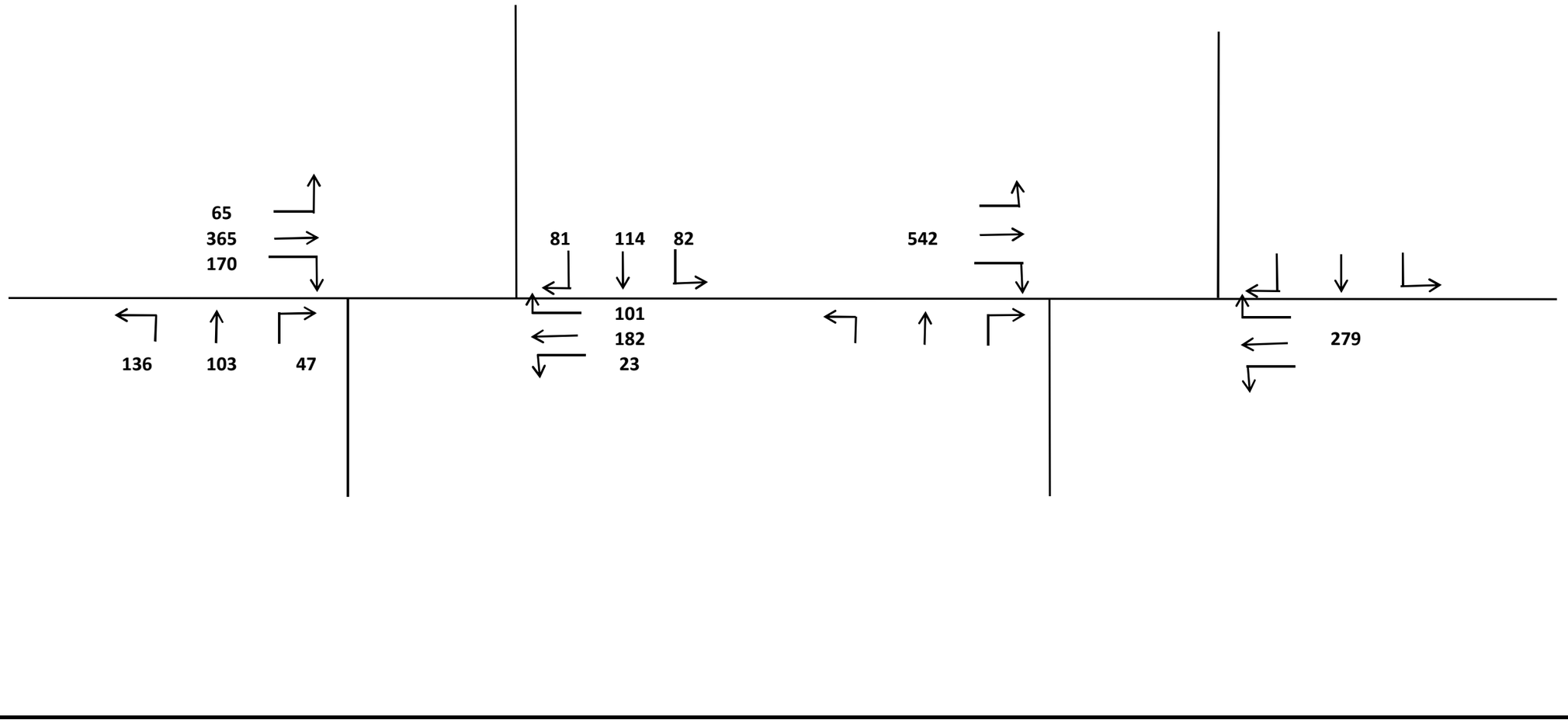
SCT 3497 Figure 1

Appendix E

Traffic Flow Diagrams

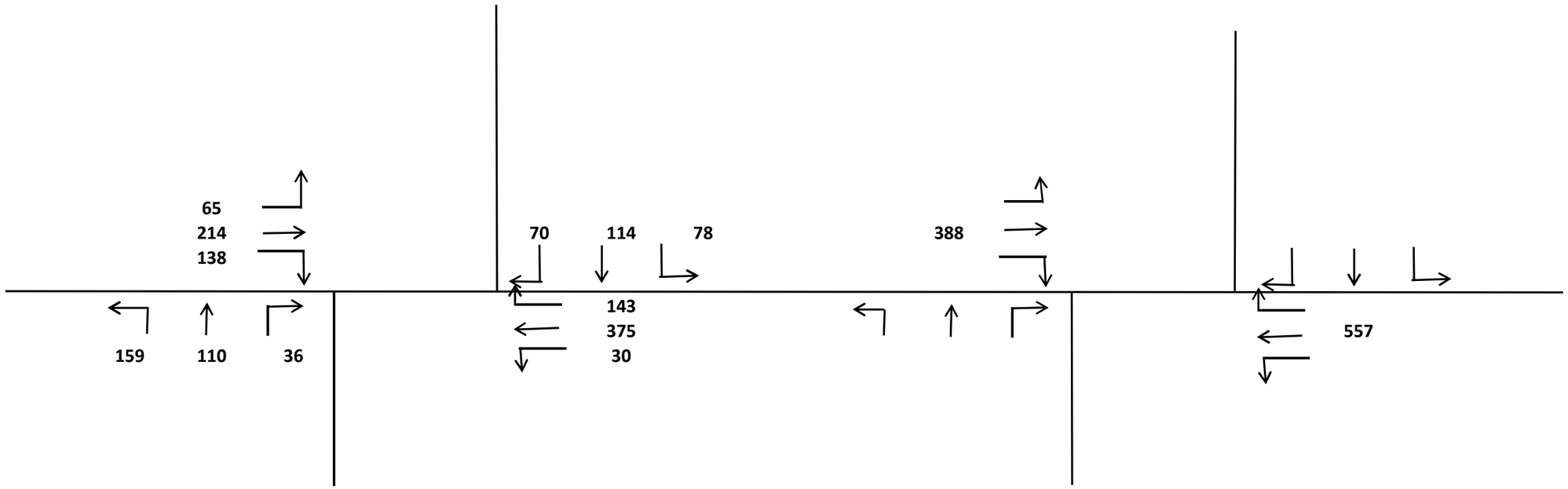
Appendix E

Traffic Flow Diagrams



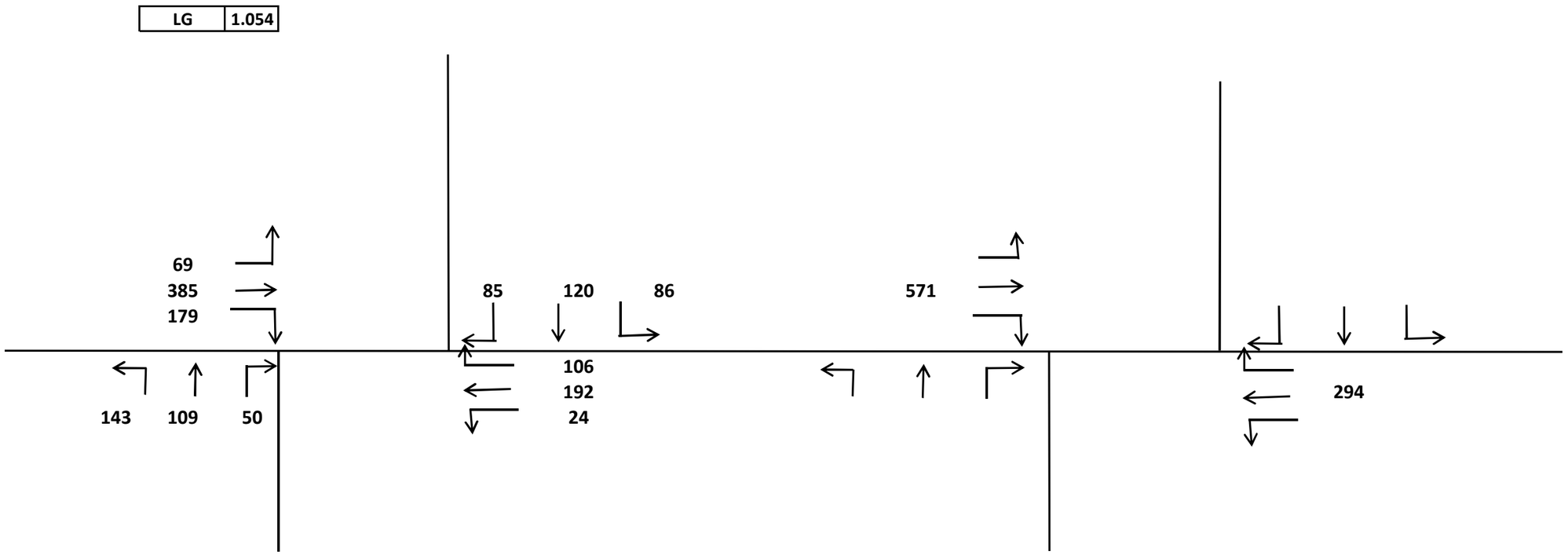
2012 AM Base

Figure 1



2012 PM Base

Figure 2

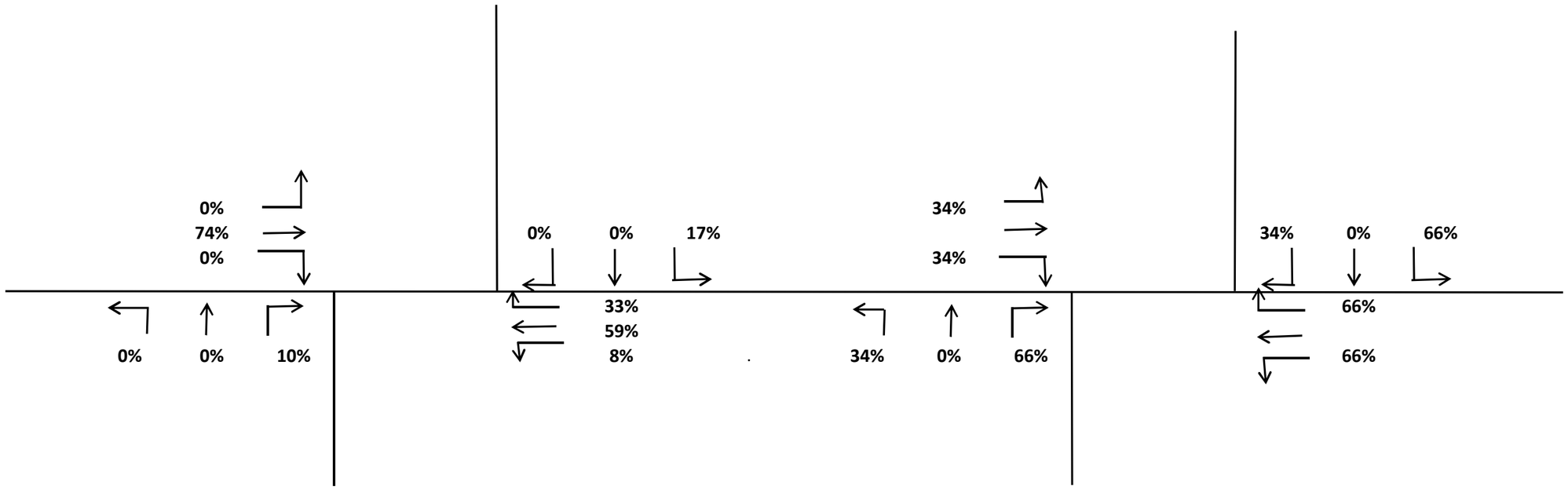


2017 AM Base

Figure 3

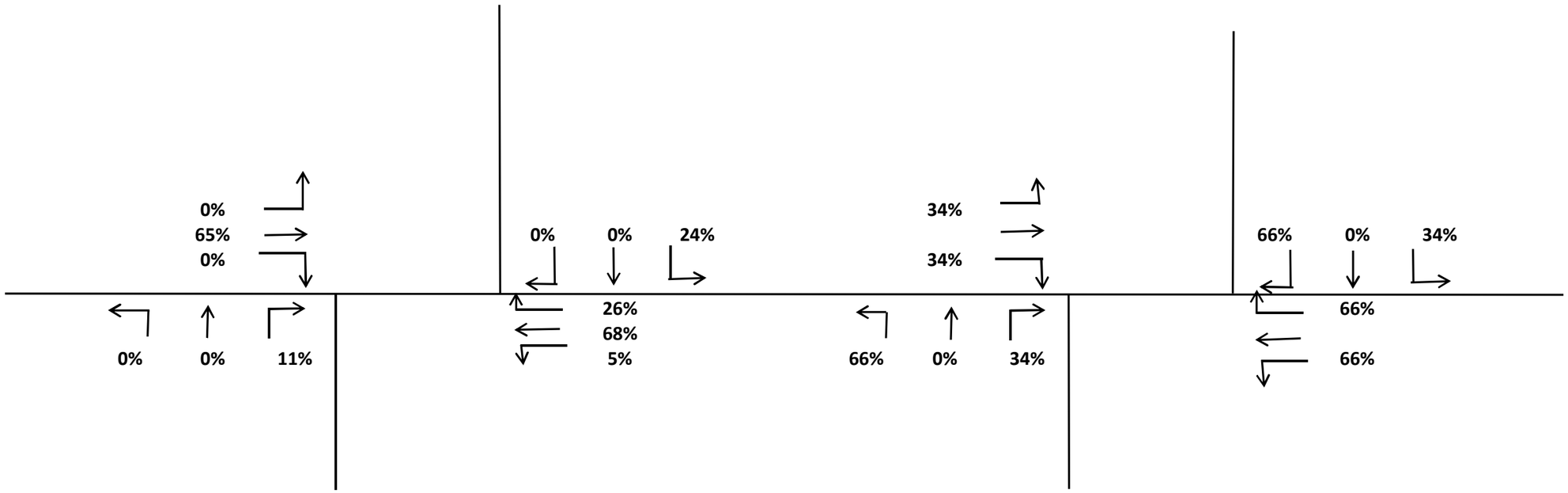
2017 PM Base

Figure 4



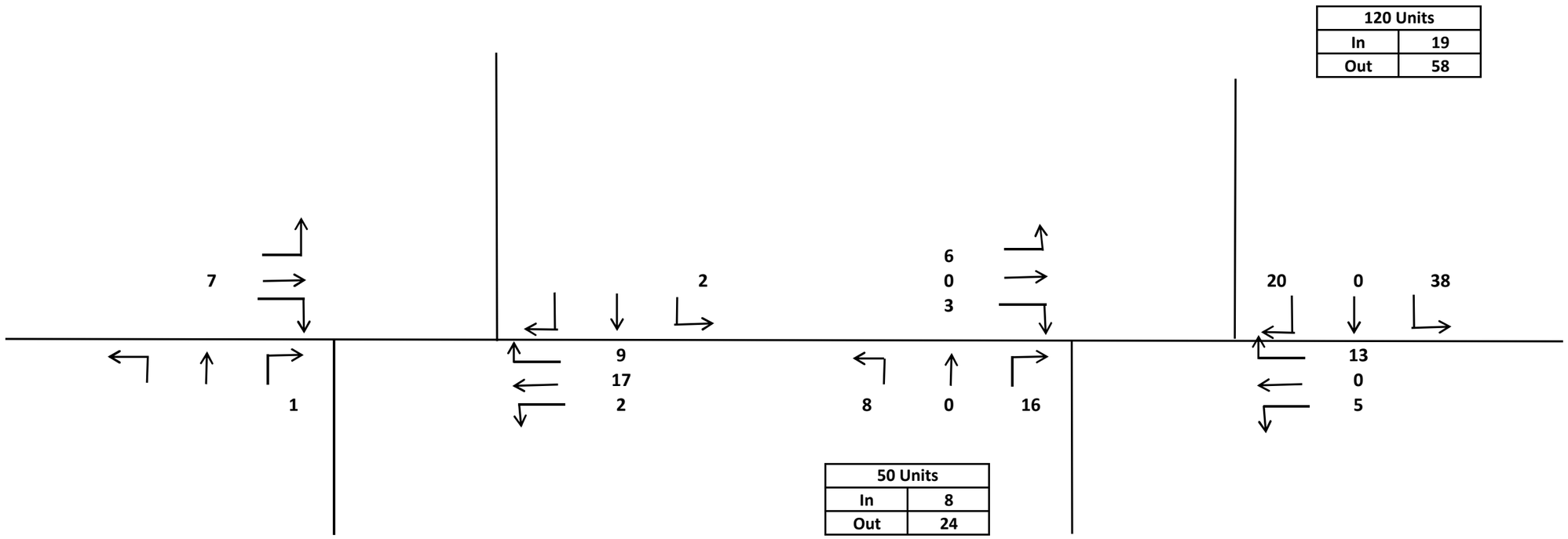
Distribution - AM Peak

Figure 5



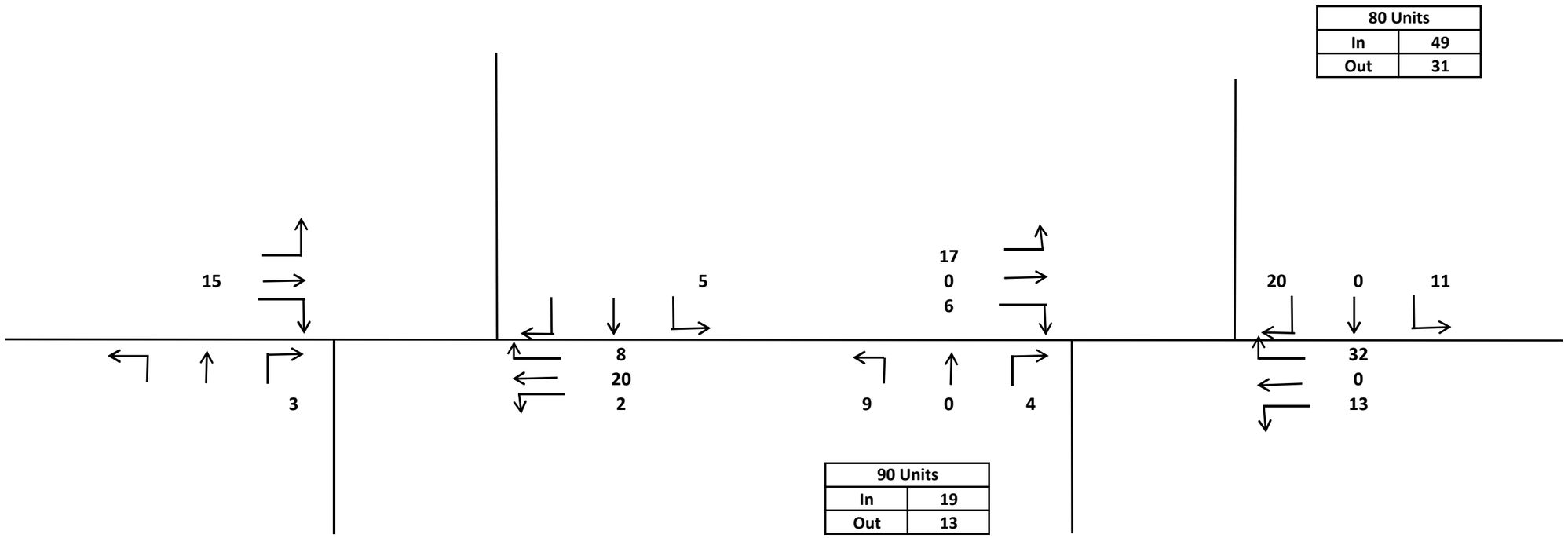
Distribution - PM Peak

Figure 6



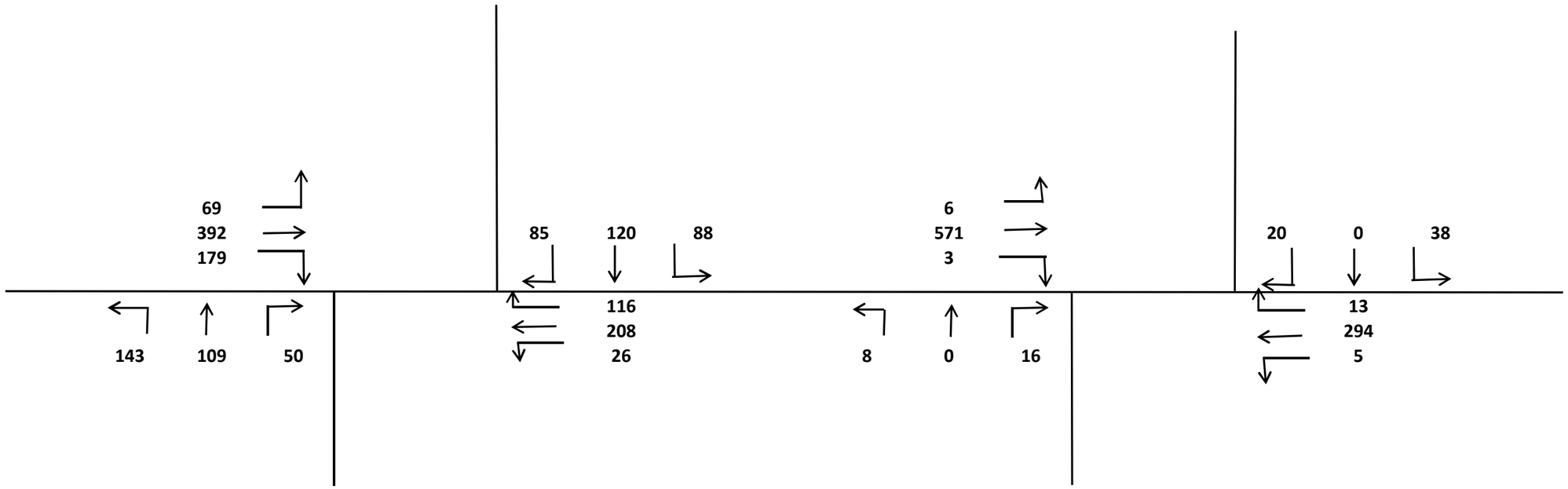
Development Traffic - AM Peak

Figure 7



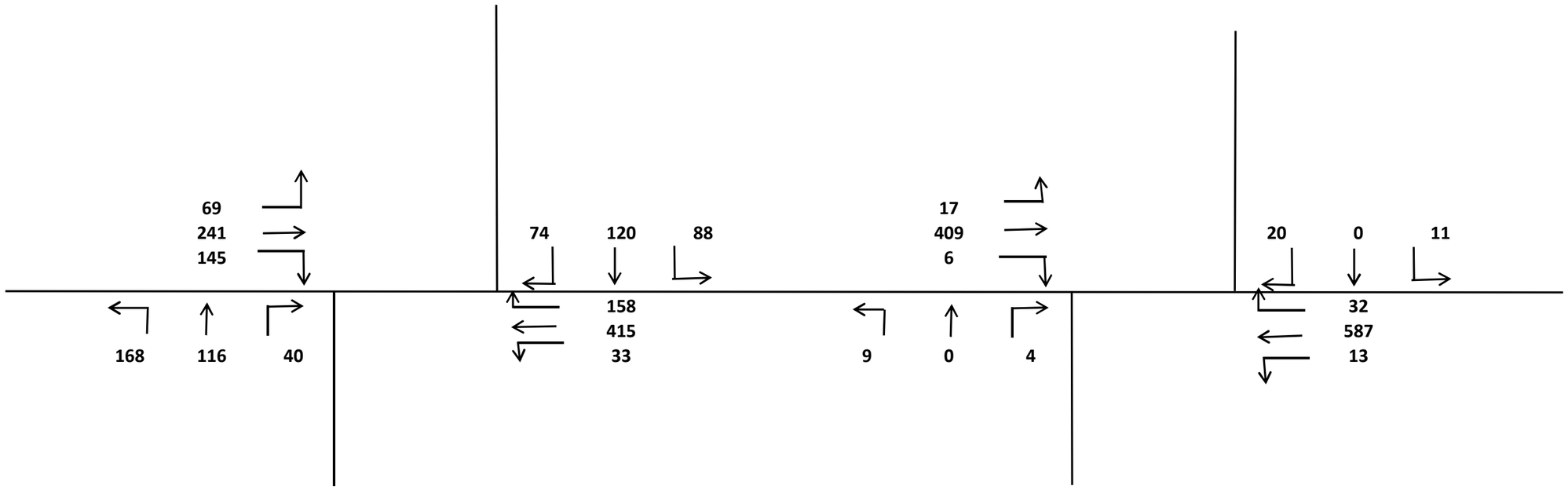
Development Traffic - PM Peak

Figure 8



2017 AM Base plus Development

Figure 9



2017 PM Base plus Development

Figure 10